Engineer: CFAC cleanup needs more scrutiny

Speaking Out · Nino Berube

There's a real problem with Columbia Falls Aluminum Co. CFAC-Glencore have used the "Columbia Falls Liaison Panel" to present only the company's side of the story. The Hungry Horse News did a good job covering the last community meeting in April, and published the presented data accurately. Unfortunately, it's only CFAC propaganda.

CFAC had a canned presentation to convince the general population that the problems at the CFAC site are small, known, and in a very specific location far away from anything else. CFAC and EPA know that the published picture does not fully depict the pollution levels and direction of plume movement. This picture/chart is based on one set of samples taken late last summer and is only the first of four sets scheduled to be taken. More importantly, and definitely not disclosed to the public, there are two other complete sets of data on the plant's pollution plume.

One was compiled in 1993 to identify the source of the fluoride and cyanide entering the Flathead River. This study was a joint Montana Department of Environmental Quality-Environmental Protection Agency request. The second complete set of samples was analyzed in 2013 by an EPA contractor. This data was used by EPA to get the CFAC site listed on the National Priorities List.

In the 1993 document, the plume had elements of what was shown in April, but there was an additional large plume of pollution east of the potlines building that extended to the river. This was identified primarily because the five drinking/cooling water wells on the plant site were included. These five wells have the longest history of active use and by far the highest concentration of sampling, since they supplied the plant's drinking water. CFAC-Roux pulled these wells from the group to be sampled in their preparation of the RI-FS document, and the EPA technical team never even noticed these critical wells were removed.

These five wells were sampled in the 2013 EPA-directed study of the plant's pollution footprint, and once again this plume on the east side of the potlines was identified. In addition, the 2013 sampling event identified another pollution plume moving southwest towards the Aluminum City area.

The real question that remains today is where and how many plumes exist?

A better effort is needed to quantify the data before telling the community the good news, "It's not flowing toward town; but into the Flathead River!"

CFAC showed several other charts in conjunction with this pollution plume chart. One showed the direction of water flow on the plant site and its relative velocity profile; a second chart showed where and why the groundwater was confined to the top 100 feet or so of gravel under the plant site. It also showed the top of the groundwater table under the plant. The water at the site was shown to flow straight west from the face of Teakettle Mountain, and at the river bluff the direction was south towards the Flathead River.

The groundwater is trapped in the top 100 feet of gravel because it is a loosely packed alluvial gravel. Below 100 feet, the gravel is still alluvial, but it has been completely infiltrated by fine clay particles. The material is very dense and tightly packed, which stops water from flowing into deeper underground water layers.

Good news.

The top of the water table in this area was shown to be higher than the depth of the bottom of the dump that is leaking pollution.

The direction and the relative velocity of the flow from the face of Teakettle Mountain indicates that water initially enters the plant site heading straight west, and at a velocity much higher than under the central part of the plant site. In all probability this collision of streams is causing the water table in front of the mountain to be forced up toward the surface.

If one considers how Lake Blaine, Many Lakes, Echo Lake, or the ponds on the Orem Farm just across the Flathead River from the plant rise immensely every spring without the existence of a significant inlet stream, one can readily understand this likely mechanism for the dumps to continuously release pollution.

In 1994, after exhaustive field work and additional sample well drilling, CFAC capped the leaking west landfill, by an order of the MDEQ section that authorized water discharge permits. CFAC told the water board that if they granted permission to cap this landfill, the pollution levels in the wells adjacent to the landfill would fall to the background levels at the plant. It would take four to five years to reach this low level, based on computer model simulations their environmental contractor had provided. CFAC used this testimony to obtain a discharge permit to continue dumping fluoride and cyanide into the Flathead River.

It's now 23 years later, and the pollution levels in the wells CFAC identified in 1994 have barely changed. Neither CFAC nor MDEQ ever followed up on the results of the cap and the decision that gave CFAC the discharge permit. The water is coming up into these dumps and not down to leach the pollution out. All of the dumps in the top 100 feet of gravel should be studied for removal of their wastes to a safer environment.

The discussion on the drum storage area should also be of great concern.

Cyanide at 7,320 micrograms per liter is dangerous — drinking water standard is 200 micrograms per liter. The fact that the well with this high concentration is roughly 100 yards straight west of the dump is equally important — it appears to support Roux's assertion that water off the face of Teakettle Mountain flows straight west. Water under the dump is carrying this pollution plume west, then, and not south to the river. The head pressure from Teakettle Mountain makes it very hard to make a good argument for southerly verses westerly flow towards Cedar Creek from this dump site.

The cyanide in Cedar Creek is north of this area, but straight west of another dump site.

CFAC claims no failed cathode material was ever stored at this site. With the cyanide find in the creek, this dump site should be drilled to make sure.

With no gate attendant, spent potliners may have found their way into this dump too. None of the wells drilled by CFAC went through any landfill. The CFAC dumps exist as unlined, unmanifested repositories of materials from 1953 to today. No official record exists of what has been buried on this site.

The last area of concern is poly-aromatic hydrocarbons (PAH) on the site. Very little was said about these compounds, which are found in coal

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tar pitch. The plant consumed between 140,000 and 250,000 pounds of coal tar pitch every day. The typical coal tar pitch is made up of roughly 10,000 compounds, but the ones of greatest health concern are the ringed hydrocarbons like benzene, a known carcinogen.

These ringed compounds are distilled or boiled out of coal tar pitch at temperatures between 200 to 600 degrees centigrade. The aluminum plant utilized coal tar pitch at temperatures twice this, which put ringed organic compounds into the air and water.

One dangerous compound produced was benzo-a-pyrene (bap). Bap mutates the organic chemicals in our DNA, which can eventually lead to cancer.

The paste plant at CFAC used a one-pass water scrubber for 45 years to wash these PAH compounds out of the off-gas. All of this water was contaminated and 66,000 gallons per day were directly injected into the underground aquifer below the plant.

In addition, the potrooms boiled these compounds off the top of the anodes in huge volumes, especially from 1955 to 2009. They were vented out of the open potline roofs, totally untreated.

The reason the soil and sediment samples taken during this first round of sampling show concentrations of heavy metals, PAH's, benzo-a-pyrene, and all manner of other chemicals is related to the air pollution at the plant. The proof and location of this deposition is already known by EPA — they initiated a PM-10 study of the Flathead Valley airshed in the 1990s. The city of Columbia Falls and the aluminum plant were participants. The study clearly defined the location and size of the airshed that the company's pollution impacted.

There are no written goals for the site at this time because this suits the interests of CFAC and the EPA. It hurts the people of Columbia Falls and Flathead County, as we will be left with whatever these entities decide.

We as a community need to provide written goals, otherwise it's nearly impossible to accomplish anything and we will have no say for the future.

EPA and CFAC can enact a plan if we give them a written path.

Another goal would be to disband the community liaison panel. We have a good core of 30 or so folks who have attended nearly every meeting, but we are rubber-stamping CFAC's easiest and cheapest path forward as they only give us their side of the story.

We need community involvement in two areas.

One is to set written goals and direction for final disposition of the property — i.e. government entities, politicians, business leaders, local neighbors, Montana Fish, Wildlife and Parks.

Two is to get technical people from EPA and CFAC to do a better job of assessing and defining the site before ultimately trying to reach for an end point.

Yes, the "CFAC Pollution Plume Flows," and it is time for the community to lead the effort to re-purpose the site with the help of CFAC and the EPA. The problems at the plant are readily solvable because they are lower-risk and generally contained to the plant property at this time. The magnitude of the problems and the potential solutions must be openly shared by CFAC if they want true support.

Engineer Nino Berube worked at the Columbia Falls Aluminum Plant for 25 years as a production supervisor, general foreman, and engineering superintendent, among other positions. He left voluntarily in 2003.